



2017-2018

1.2 Polynomial Identities & Factoring

Name _____ Date _____ Period _____

Expand the product using polynomial identities. Write the identity used. Show work!

1. $(x-2)(x+5)$

2. $(3x-y)(3x+y)$

3. $(3x+4y)^2$

4. $(u+3v)^3$

5. $(\sqrt{u}+\sqrt{v})(\sqrt{u}-\sqrt{v})$

6. $(x-2)(x^2+2x+4)$

Factor each expression using the polynomial identities. Write the identity used. Show work!

7. $64-25y^2$

8. $y^2+8y+16$

9. $27y^3-8$

10. $x^2+9x+14$

Use the quadratic formula to solve each equation. Show work!

11. $x^2 - 5x - 7 = 0$

12. $3x^2 - 4x + 3 = 0$

Expand each expression using polynomial identities and complex numbers. Show work!

13. $(x + 5i)^2$

14. $(x + 3i)(x - 3i)$

Factor each expression over the complex numbers. Use identities if needed. Show work!

15. $4x^2 + 49$

16. $x^2 - 10x + 26$

Factor each polynomial completely. Look for GCF first, then identify whether it is a polynomial identity. Factor accordingly. Show work!

17. $3k^2 - 24k - 60$

18. $36xy + 48x - 6ky - 8k$

19. $6n^3 - 3n^2$

20. $20b^2 + 156b + 216$

21. $7n^2 + 61n - 18$

22. $6u^4 - 6u^2 - 540$

23. $r^2 - 100$

24. $32a^2 - 18b^2$

25. $245y^2 + 350yx + 125x^2$

26. $1 + x^3$

27. $1 - 125x^3$

28. $1 + 64x^6$

Solve each equation by factoring. Show work!

29. $x^2 - x - 90 = 0$

30. $5x^2 + 10x = 0$

Practice Review Problems

Simplify each expression using the correct operation. Show work!

31. $(x^2 + 2x - 7) + (-3x^2 - 5x + 10)$

32. $(x - 3)(x^2 - 2x + 4)$

33. Use: $f(x) = x^3 - x^2 - 5x - 3$ to find $f(-1)$